



Safety Data Sheet

1. Identification of the substance/mixture and of the company/undertaking

Product identifier:

Product name: Manganese(IV)oxide

SDS No. : 4729E-2

Details of the supplier of the safety data sheet

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.

Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN

Division: Chemical Safety Management Department

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2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Germ cell mutagenicity: Category 2

Specific target organ toxicity – single exposure: Category 1(respiratory system)

Specific target organ toxicity – repeated exposure: Category 1(nervous system; respiratory system)

ENVIRONMENT HAZARDS

Hazardous to the aquatic environment (Long-term): Category 4

Label elements



Signal word: Danger

HAZARD STATEMENT

Suspected of causing genetic defects

Causes damage to organs(respiratory system)

Causes damage to organs through prolonged or repeated exposure(nervous system; respiratory system)

May cause long lasting harmful effects to aquatic life

PRECAUTIONARY STATEMENT

Prevention

Avoid release to the environment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Response

Get medical advice/attention if you feel unwell.

IF exposed or concerned: Get medical advice/attention.

Disposal

Dispose of contents/container in accordance with local/national regulation.



3. Composition/information on ingredients

Mixture/Substance selection:

Substance

Ingredient name:Manganese(IV) oxide

Content (%):70(min)

Chemical formula:MnO₂

Chemicals No, Japan:1-475

CAS No.:1313-13-9

MW:86.94

ECNO:215-202-6

Note : The figures shown above are not the specifications of the product.

4. First-aid measures

Descriptions of first-aid measures

General measures

Get medical advice/attention if you feel unwell.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Call a POISON CENTER/doctor/physician if you feel unwell.

IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water or shower.

If skin irritation or rash occurs: Get medical advice/attention.

IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

IF SWALLOWED

Rinse mouth.

Call a POISON CENTER/doctor/physician if you feel unwell.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.



6. Accidental release measures

Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

Avoid raising dust.

Methods and materials for containment and cleaning up

Sweep up, place in a bag and hold for waste disposal.

Preventive measures for secondary accident

Collect spillage.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Wear protective gloves, protective clothing or face protection.

When using do not eat, drink or smoke.

Any incompatibilities

See "10.Stability and Reactivity"

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Storage

Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

Container and packaging materials for safe handling

Glass

Polyethylene

8. Exposure controls/personal protection

Control parameters

Adopted value

(Manganese(IV) oxide)

ACGIH(2013) TWA: 0.02mg-Mn/m³(R);

TWA: 0.1mg-Mn/m³(I) (CNS impair)

OSHA-PEL

(Manganese(IV) oxide)

STEL: C 5mg-Mn/m³

Exposure controls

**Appropriate engineering controls**

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

Individual protection measures**Respiratory protection**

Wear respiratory protection.

Hand protection

Wear protective gloves.

Eye protection

Wear eye/face protection.

9. Physical and Chemical Properties**Information on basic physical and chemical properties**

Physical state: Granular or powder

Color: Black to brown

Odor: Odorless

Melting point/Freezing point: (decomposes) 535°C

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids) data is not available.

Lower and upper explosion limit/flammability limit data is not available.

Flash point data is not available.

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

pH data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Insoluble

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Density and/or relative density: 5 g/cm³

Relative vapor density (Air=1) data is not available.

Particle characteristics data is not available.

10. Stability and Reactivity**Reactivity**

Not available.

Chemical stability

Stable under normal storage/handling conditions.

Possibility of hazardous reactions

Decomposes above 553°C. This produces manganese(III)oxide and oxygen, which increases fire hazard. The substance is a strong oxidant. It reacts violently with combustible and reducing materials. This generates fire and explosion hazard. Reacts with aluminium on heating. (ICSC 0175)

Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

Incompatible materials

Reducing agents, Combustible materials, Aluminium

Hazardous decomposition products

Manganese(III)oxide

11. Toxicological Information

Information on toxicological effects

Acute toxicity data is not available.

Irritant properties

Skin corrosion/irritation data is not available.

Serious eye damage/irritation data is not available.

Allergenic and sensitizing effects data is not available.

Germ cell mutagenicity

[GHS Cat. Japan, base data]

(Manganese(IV) oxide)

cat. 2; mouse : SIDS, 2012

Carcinogenicity

[ACGIH]

(Manganese(IV) oxide)

A4(as Mn)(2013) : Not Classifiable as a Human Carcinogen

Reproductive toxicity data is not available.

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Manganese(IV) oxide)

respiratory system (CICAD 12, 1999)

STOT-repeated exposure

[cat.1]

[GHS Cat. Japan, base data]

(Manganese(IV) oxide)

nervous system; respiratory system (ATSDR, 2012)

Aspiration hazard data is not available.

Information on other hazards

May cause lung disorders by massive inhalation of powdered substance.

-e.g. fibrosis of lung tissue, cough, sputum, breath shortness, dyspnea, decline of lung function, interstitial lung disease, pneumothorax

12. Ecological Information

Ecotoxicity

Aquatic toxicity

May cause long lasting harmful effects to aquatic life

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Manganese(IV) oxide)

Algae (*Pseudokirchneriella subcapitata*) ErC50 > 100mg/L/72hr (SIDS, 2012)

Water solubility

(Manganese(IV) oxide)

none (ICSC, 2003)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.



13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment.

Dispose of contents/container in accordance with local/national regulation.

14. Transport Information

UN No. or ID No.: Not applicable

Not applicable to IMDG Code

Not applicable to IATA Dangerous Goods Regulations

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

MARPOL Annex V – Prevention of pollution by garbage discharge

Specific target organ toxicity – repeated exposure: cat.1

Manganese(IV) oxide

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Chemicals listed in TSCA Inventory

Manganese(IV) oxide

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

16. Other information

GHS classification and labelling

Muta. 2: H341 Suspected of causing genetic defects

STOT SE 1: H370 Causes damage to organs

STOT RE 1: H372 Causes damage to organs through prolonged or repeated exposure

Aquatic Chronic 4: H413 May cause long lasting harmful effects to aquatic life

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39–18)

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2021 TLVs and BEIs. (ACGIH)

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling, and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2020).